

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number  
**WO 2005/086186 A1**

(51) International Patent Classification<sup>7</sup>: **H01F 27/28**

(21) International Application Number:  
PCT/US2005/006063

(22) International Filing Date: 28 February 2005 (28.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/547,802 27 February 2004 (27.02.2004) US

(71) Applicant and

(72) Inventor: **BUSWELL, Harrie, R.** [US/US]; 132 Lorraine Court, Berea, KY 40403 (US).

(74) Agents: **SHAPIRO, Mitchell, W.** et al.; Miles & Stockbridge P.C., 1751 Pinnacle Drive, Suite 500., McLean, VA 22102-3833 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

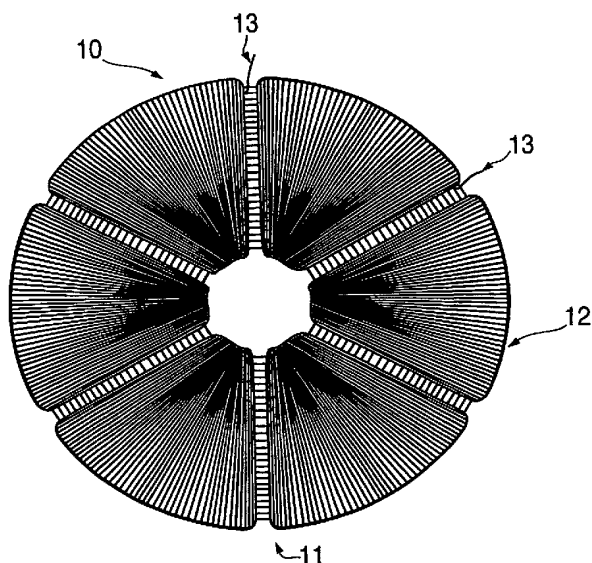
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TOROIDAL INDUCTIVE DEVICES AND METHODS OF MAKING THE SAME



(57) Abstract: A toroidal inductive device has an electrical winding component (11) of generally toroidal shape and discrete magnetic components (12) shaped as toric sections. The discrete magnetic components (12) are arranged on the electrical winding component such that the discrete magnetic components (12) are offset circumferentially from each other and at least partially embrace the electrical winding component (11). The magnetic components (12) define magnetic flux gaps in meridional planes. A method for forming a magnetic component is also provided wherein magnetic wire is wound onto a toroidal electrical winding component without the need for passing a spool through a central opening of the toroid.

WO 2005/086186 A1